

In the Claims:

1. (Original) A semiconductor die package comprising:
 - a polymer base comprising a lower surface and an upper surface, the upper surface for mounting at least one semiconductor die;
 - a polymer cap operatively secured over at least a portion of the upper surface of the base forming a cavity, the cap having a light transmissive member operatively positioned to allow light of predetermined wavelengths to pass between at least a portion of the upper surface of the base and the light transmissive member; and
 - a plurality of conductive leads extending through the base from the lower surface of the base to the cavity.

2. (Original) A matrix of semiconductor die packages comprising:
 - a base matrix comprising a plurality of polymer bases, each base comprising a surface for mounting at least one semiconductor die;
 - a cap matrix comprising a plurality of polymer caps operatively secured over the base matrix, each base and cap combination forming a cavity, each cap having a light transmissive member operatively positioned to allow light of predetermined wavelengths to pass between the surface for mounting at least one semiconductor die of a corresponding base and the light transmissive member; and
 - a plurality of conductive leads extending through each base from an outside surface of each base to the corresponding cavity formed by each cap and base combination.

3. (Original) A method of making a semiconductor die package comprising:
 - forming a polymer base comprising a lower surface and an upper surface, the upper surface for mounting at least one semiconductor die;
 - forming a polymer cap operatively secured over at least a portion of the upper surface of the base forming a cavity, the cap having a light transmissive member operatively positioned to allow light of predetermined wavelengths to pass between at least a portion of the upper surface of the base and the light transmissive member; and

forming a plurality of conductive leads extending through the base from the lower surface of the base to the cavity.

4. (Original) A method of making semiconductor die packages comprising:
forming a base matrix comprising a plurality of polymer bases, each base comprising a surface for mounting at least one semiconductor die;
forming a cap matrix comprising a plurality of polymer caps operatively secured over the base matrix, each base and cap combination forming a cavity, each cap having a light transmissive member operatively positioned to allow light of predetermined wavelengths to pass between the surface for mounting at least one semiconductor die of a corresponding base and the light transmissive member; and
positioning a plurality of conductive leads extending through each base from an outside surface of each base to the corresponding cavity formed by each cap and base combination.

5. (New) The semiconductor die package according to claim 1, further comprising a semiconductor die mounted on the upper surface of the polymer base, the semiconductor die being in electrical communication with at least one of the plurality of conductive leads extending through the base.

6. (New) The semiconductor die package according to claim 1, wherein the conductive leads comprise an outer conductive layer coaxially arranged around a dielectric layer and a center conductor.

7. (New) The semiconductor die package according to claim 1, further comprising a leg extension having a plurality of conductive legs, the leg extension being mounted on the lower surface of the polymer base, wherein at least one of the plurality of conductive legs are in electrical communication with at least one of the plurality of conductive leads extending through the base.

8. (New) The semiconductor die package according to claim 7, wherein the conductive leads comprise an outer conductive layer coaxially arranged around a dielectric layer and a center conductor, and the conductive legs comprise a second outer conductive layer coaxially arranged around a second dielectric layer and a second center conductor.

9. (New) The semiconductor die package according to claim 1, wherein the light transmissive member comprises a grated index lens.

10. (New) The semiconductor die package according to claim 1, wherein the light transmissive member comprises a ball lens.

11. (New) The semiconductor die package according to claim 1, wherein the light transmissive member comprises a square window.

12. (New) The semiconductor die package according to claim 1, wherein the light transmissive member lies in a plane forming a non-zero angle with the plane containing the upper surface of the base.

13. (New) The semiconductor die package according to claim 1, wherein the polymer cap further comprises a receptacle for receiving an optical connector.

14. (New) The semiconductor die package according to claim 1, the upper surface of the polymer base further comprising a pedestal for mounting a semiconductor die.

15. (New) The matrix of semiconductor die packages according to claim 2, wherein a plurality of the bases comprising the base matrix have a semiconductor die mounted on the surface and being in electrical communication with at least one of the plurality of conductive leads extending through each base.

16. (New) The matrix of semiconductor die packages according to claim 2, wherein the conductive leads comprise an outer conductive layer coaxially arranged around a dielectric layer and a center conductor.

17. (New) The matrix of semiconductor die packages according to claim 2, further comprising a leg extension matrix, each leg extension in the leg extension matrix having a plurality of conductive legs, the leg extension matrix being mounted on the lower surface of the base matrix, wherein at least one of the plurality of conductive legs of each leg extension are in electrical communication with at least one of the plurality of conductive leads of the corresponding base.

18. (New) The matrix of semiconductor die packages according to claim 17, wherein the conductive leads comprise an outer conductive layer coaxially arranged around a dielectric layer and a center conductor, and the conductive legs comprise a second outer conductive layer coaxially arranged around a second dielectric layer and a second center conductor.

19. (New) The matrix of semiconductor die packages according to claim 2, wherein the light transmissive member comprises a grated index lens.

20. (New) The matrix of semiconductor die packages according to claim 2, wherein the light transmissive member comprises a ball lens.

21. (New) The matrix of semiconductor die packages according to claim 2, wherein the light transmissive member comprises a square window.

22. (New) The matrix of semiconductor die packages according to claim 2, wherein a plurality of the light transmissive members lie in a plane forming a non-zero angle with the plane containing the upper surface of each base.

23. (New) The matrix of semiconductor die packages according to claim 2, wherein a plurality of caps comprising the cap matrix further comprise a receptacle for receiving an optical connector.

24. (New) The matrix of semiconductor die packages according to claim 2, wherein a plurality of the bases comprising the base matrix further comprise a pedestal for mounting a semiconductor die.

25. (New) The matrix of semiconductor die packages according to claim 2, wherein separation lines are molded between a plurality of the bases in the base matrix and between a plurality of the caps in the cap matrix.

26. (New) The method of making a semiconductor die package according to claim 3, further comprising mounting a semiconductor die on the upper surface of the polymer base, the semiconductor die being in electrical communication with at least one of the plurality of conductive leads extending through the base.

27. (New) The method of making a semiconductor die package according to claim 3 further comprising forming the conductive leads with an outer conductive layer coaxially arranged around a dielectric layer and a center conductor.

28. (New) The method of making a semiconductor die package according to claim 3, further comprising forming a leg extension having a plurality of conductive legs, and mounting the leg extension on the lower surface of the polymer base, wherein at least one of the plurality of conductive legs are in electrical communication with at least one of the plurality of conductive leads extending through the base.

29. (New) The method of making a semiconductor die package according to claim 28, further comprising forming the conductive leads with an outer conductive layer coaxially arranged around a dielectric layer and a center conductor, and forming the conductive legs with a

second outer conductive layer coaxially arranged around a second dielectric layer and a second center conductor.

30. (New) The method of making a semiconductor die package according to claim 3, further comprising mounting a grated index lens to form the light transmissive member.

31. (New) The method of making a semiconductor die package according to claim 3, further comprising mounting a ball lens to form the light transmissive member.

32. (New) The method of making a semiconductor die package according to claim 3, further comprising forming the light transmissive member in the shape of a square window.

33. (New) The method of making a semiconductor die package according to claim 3, further comprising forming the light transmissive member in a plane forming a non-zero angle with the plane containing the upper surface of the base.

34. (New) The method of making a semiconductor die package according to claim 3, further comprising forming a receptacle for receiving an optical connector in the polymer cap.

35. (New) The method of making a semiconductor die package according to claim 3, further comprising forming a pedestal for mounting a semiconductor die on the upper surface of the polymer base.

36. (New) The method of making semiconductor die packages according to claim 4, further comprising mounting a semiconductor die on the plurality of bases comprising the base matrix, the semiconductor die being in electrical communication with at least one of the plurality of conductive leads extending through each base.

37. (New) The method of making semiconductor die packages according to claim 4, further comprising forming the conductive leads with an outer conductive layer coaxially arranged around a dielectric layer and a center conductor.

38. (New) The method of making semiconductor die packages according to claim 4, further comprising forming a leg extension matrix, each leg extension in the leg extension matrix having a plurality of conductive legs, and mounting the leg extension matrix on the lower surface of the base matrix, wherein at least one of the plurality of conductive legs of each leg extension is in electrical communication with at least one of the plurality of conductive leads of the corresponding base.

39. (New) The method of making semiconductor die packages according to claim 38, further comprising forming the conductive leads with an outer conductive layer coaxially arranged around a dielectric layer and a center conductor, and forming the conductive legs with a second outer conductive layer coaxially arranged around a second dielectric layer and a second center conductor.

40. (New) The method of making semiconductor die packages according to claim 4, further comprising mounting a grated index lens to form the light transmissive member.

41. (New) The method of making semiconductor die packages according to claim 4, further comprising mounting a ball lens to form the light transmissive member.

42. (New) The method of making semiconductor die packages according to claim 4, further comprising forming the light transmissive member in the shape of a square window.

43. (New) The method of making semiconductor die packages according to claim 4, further comprising forming a plurality of the light transmissive members in a plane forming a non-zero angle with the plane containing the upper surface of each base.

44. (New) The method of making semiconductor die packages according to claim 4, further comprising forming a receptacle for receiving an optical connector in a plurality of caps comprising the cap matrix.

45. (New) The method of making semiconductor die packages according to claim 4, further comprising forming a pedestal for mounting a semiconductor die on the surface of a plurality of the bases.

46. (New) The method of making semiconductor die packages according to claim 4, further comprising molding separation lines between a plurality of the bases in the base matrix and between a plurality of the caps in the cap matrix.